

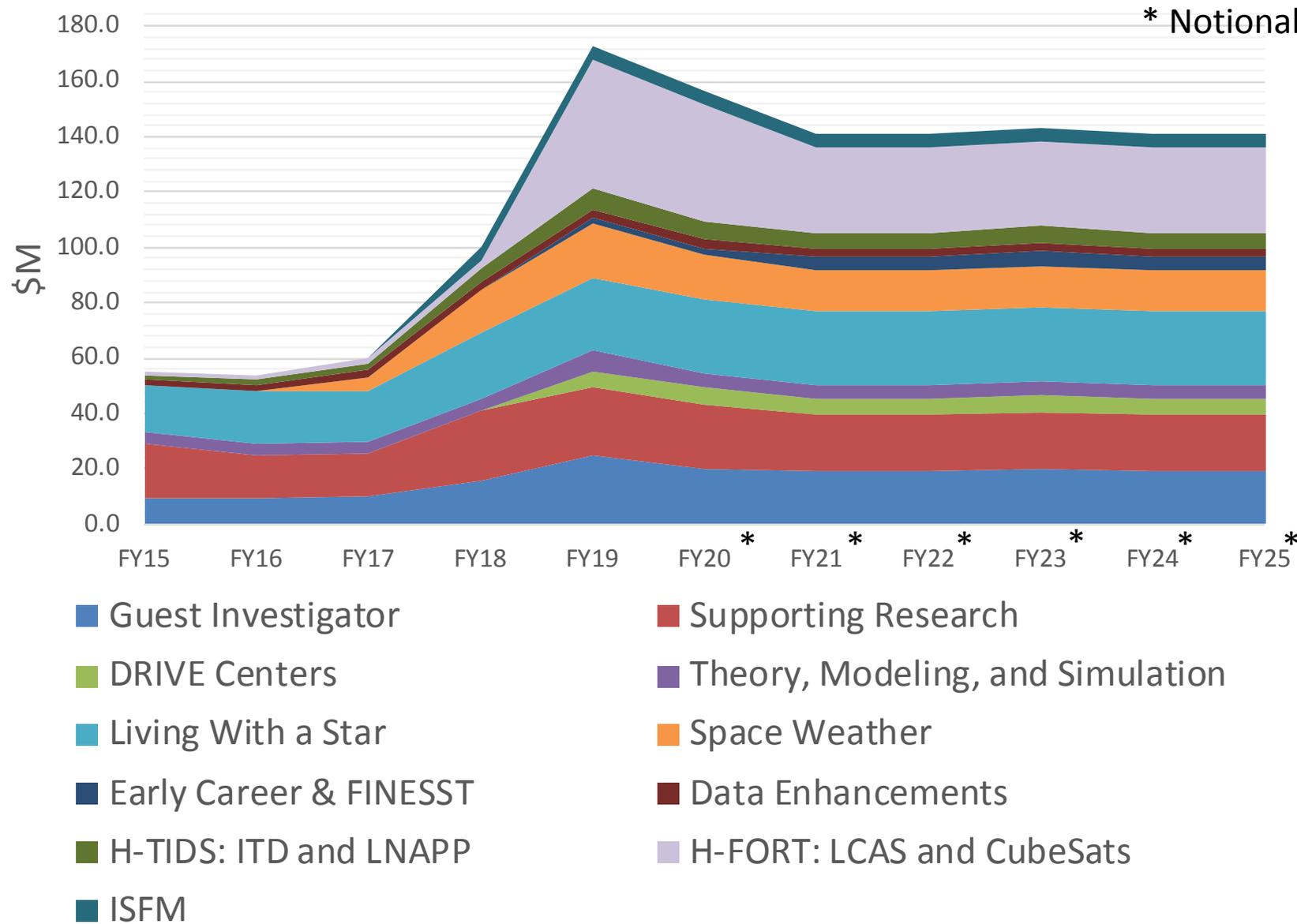
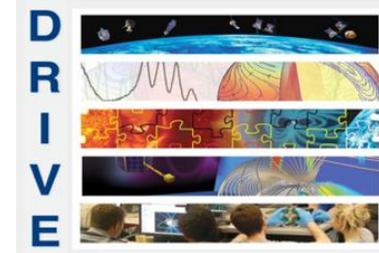
ROSES R&A

Ongoing Programs and New Initiatives

Mona Kessel

Heliophysics R&A Lead, NASA HQ

Fully Implemented DRIVE Initiative



- DRIVE initiative is now part of the Heliophysics R&A baseline
- Space Weather is in addition to this baseline
- 1st ever Heliophysics DRIVE Science Centers kicking off in 2019

R&A Program (2018)

Established (annual) Programs

- Supporting Research (HSR)
- Guest Investigators (HGI) ★
- Living With a Star (LWS)
- Technology Instrument Development for Science (HTIDS)
 - ITD and LNAPP (HTIDS) ★
 - LCAS and CubeSats (HFORT)
- Data Enhancements (HDEE)
- FINESST (graduate students)

Established (tri-annual) Program

- Theory, Modeling, Simulation (TMS)

New (annual) Program

- Space Weather (SWO2R) ★

New Programs

- Early Career Investigators (ECIP)
- DRIVE Centers ★
- ISFM ★

★ DRIVE

★ New Initiative

★ Internal NASA

New 2018 R&A Programs

Heliophysics System Observatory

Early Career Investigators

The ECIP is designed to support outstanding scientific research and career development of scientists and engineers at the early stage of their professional careers. The program encourages innovative research initiatives and cultivate diverse scientific leadership in Heliophysics, and fosters the empowerment, inspiration, and education of the next generation of space researchers, as part of the E of the DRIVE initiative.

DRIVE Science Centers

DSCs, which fall under the "Venture" aspect of the DRIVE initiative, address grand challenge goals that are both ambitious and focused enough to be achievable within the lifetime of the center. This program is intended to support science that cannot be effectively done by individual investigators or small teams, but requires the synergistic, coordinated efforts of a research center. The DSC Program is two-phase. Phase I DSC proposals solicited for 2-year awards, those awardees may seek further 5-year awards by the submission of a proposal to the anticipated follow-on Phase II DSC solicitation.

Internal Scientist Funding Model

ISFM awards	PI
Particle Energization and Transport in the Solar Corona, Heliosphere, and Magnetosphere	deNolfo, Georgia
Magnetic Energy Buildup and release in the Solar Atmosphere	DeVore, Richard
Understanding how magnetic reconnection, magnetosphere-ionosphere coupling and turbulence shape the large scale structure and dynamics of Earth's magnetosphere	Dorelli, John
Bringing together theory, models, and data to determine the causes and consequences of ionospheric outflow	Glocer, Alex
Understanding Coronal Heating and the Solar Spectral Irradiance	Klimchuk, James
Dynamics, Coupling, and Chemistry of the Upper Atmosphere/Ionosphere -- Improved physical understanding, model input, and predictive capability	Pfaff, Robert
WHPI Support for HSO Connect	Thompson, Barbara
Connecting the corona to solar wind structure and magnetospheric impact using modeling and remote and in situ observations	Viall, Nicholeen

R&A Program (2019)

Established (annual) Programs

- Supporting Research (HSR)
- Guest Investigators (HGI)
- Living With a Star (LWS)
- Technology Instrument Development for Science (HTIDS)
 - ITD and LNAPP (HTIDS)
 - LCAS and CubeSats (HFORT)
- Data Enhancements (HDEE)
- FINESST (graduate students)
- Space Weather (SWO2R)

Established (multi-annual) Program

- Theory, Modeling, Simulation (TMS)
- Early Career Investigators (ECIP)
- DRIVE Centers
- ISFM

New Programs

- HSO Connect / HSO Data Support
- OHGI
- GOLD/ICON GI

New 2019 R&A Programs

Heliophysics System Observatory

HSO Data Support

The overall HDEE program solicits proposals to enhance the quality, delivery, and preservation of Heliophysics data. HSO DS solicited two-year proposals for ground-based solar and coronagraphic observations that would complement and provide context for the PSP data set, and enable an enhanced science return from the mission, in particular for near-term perihelion passages. *Announcements this week.*

HSO Connect

The HSO Connect program will support interdisciplinary teams working together to use the HSO as an end-to-end system, utilizing observations from the Parker Solar Probe (PSP) mission together with other observations throughout the whole heliosphere. Key elements are advanced planning of coordinated observing campaigns, integration of data analysis activities, and modeling/simulations of the Sun, the heliosphere, geospace and planetary space environments. HSO-Connect is intended to support science with complex and nonlinear patterns of causes and large-scale responses, science that requires a coordinated effort. Released soon.

Targeted Guest Investigator

Outer Heliosphere GI

The OH-GI program solicits proposals that focus on analysis of data from Voyager, the Interstellar Boundary Explorer (IBEX), and other space assets that generate data enabling the study of the outer heliosphere, to maximize the scientific return from these mature missions by providing support for research beyond presently funded investigations. It may also act to inform future exploration and investigation opportunities of interstellar space.

GOLD-ICON GI

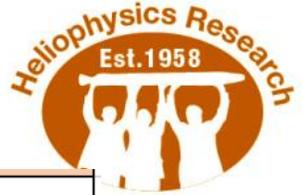
Pending successful launch (October 9, 2019!) and commissioning of the ICON mission.

Heliophysics Research: ROSES 18



	ROSES Element		Proposal Due Date	Notify Date	Days Since Received	# Proposals received	# Proposals selected	% selected
2018	HGIO	Guest Investigators Open	6/15/18	10/25/18	132	142	37	26%
	HTIDS	Technology and Instrument Development for Science	7/20/18	12/20/18	153	74	13	38%
			7/20/18	2/11/19	206		9	
			4/30/19	6/3/19	34		6	
	HDEE	Data Environment Enhancements	7/20/18	12/20/18	153	4	4	100%
	SWO2R	Space Weather Operations to Research	8/3/18	10/23/18	81	19	9	47%
	HSR	Supporting Research	9/7/18	4/1/19	206	168	33	20%
	ECIP	Early Career Investigator Program	9/21/18	4/1/19	192	51	12	24%
	LWS Science	Living With a Star Science	5/9/19			104		
	SWO2R-2	Second Space Weather Operations to Research	5/16/19			12		
DRIVE Centers	Phase I DRIVE Centers	6/20/19			39			

Heliophysics Research: ROSES 19



	ROSES Element		Proposal Due Date	Notify Date	Days Since Received	# Proposals received	# Proposals selected	% selected
2019	HDEE	Data Environment Emphasis	6/20/19			15		
	HGIO	Guest Investigators Open	7/17/19			128		
	HSODS	Heliophysics System Observatory Data Support	8/15/19	9/30/19	46	6	4	67%
	HTIDS	Technology and Instrument Development for Science	8/28/19			31		
	HSR	Supporting Research	10/18/19					
	HFORT	Flight Opportunities for Research and Technology	11/1/19					
	TMS	Theory, Modeling, Simulation	12/3/19					
	OHGI	Outer Heliosphere Guest Investigator	12/3/19					
	SWO2R	Space Weather Applications Operations 2 Research	2/13/20					
	LWS Science	Living With a Star Science	2/27/20					

Dual Anonymous Reviews

STScI, September 25th 2019

Bahcall Auditorium

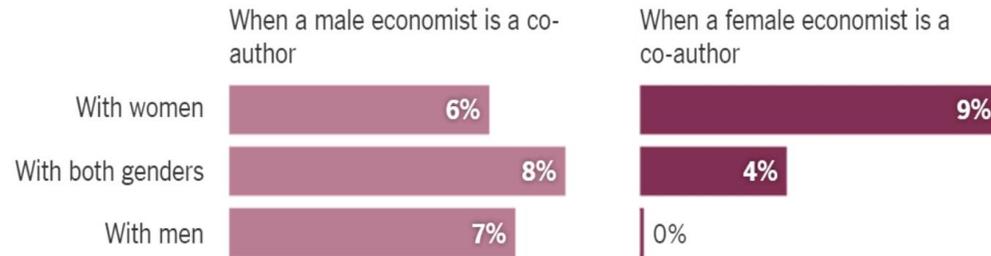
Morning: Facts and foundations – issues, actions and community reception

Time	Speaker(s)	Title
08:30	Ken Sembach	Welcome & introduction
08:45	Stefanie Johnson (Colorado)	Unconscious bias in reviews
09:15	Neill Reid (STScI)	HST TAC structure and proposal stats – before and after
09:30	Arvind Parmar (ESA)	ESA AO outcomes
09:45	Louis Strolger (STScI)	Preparing the community
10:15	Christina Richey (JPL), Rupali Chandar (Toledo), Brian Williams (GSFC)	Community reactions
10:45		Coffee
11:00	Svea Hernandez, Crystal Mannfolk, Greg Snyder (STScI)	Panel support perspective + levelers
11:45	Priya Natarajan (Yale), Saurabh Jha (Rutgers), Rupali Chandar (Toledo)	Panel chairs & panelist perspective
12:30	Jessica Kirk (Memphis)	Watching the TAC
13:00		Lunch

Who Gets the Credit for Collaboration?

Women get full credit, in terms of earning tenure, only when writing papers with other women. Writing one with a man has no impact on the female author, only the male.

Effect of writing an additional paper on the probability of earning tenure



Source: Heather Sarsons, "Gender Differences in Recognition for Group Work"

Solo authored papers contribute to one's chance of getting tenure at 8-9%

From presentation

Breaking Bias
by
Stefanie Johnson
Colorado

PERFORMANCE EVALUATIONS

Looks Like Women Code Better Than Men, if No One Knows They're Women

A look at GitHub puts the work of women in computer science in a new perspective.

BY KIMBERLY WEISUL, Editor-at-large, Inc.com @kweisul



3 COMMENTS



GitHub study shows that women's code was accepted 4% more than men's
Women used-gender neutral profiles 71.8%
When it was clear she was female 62.5%

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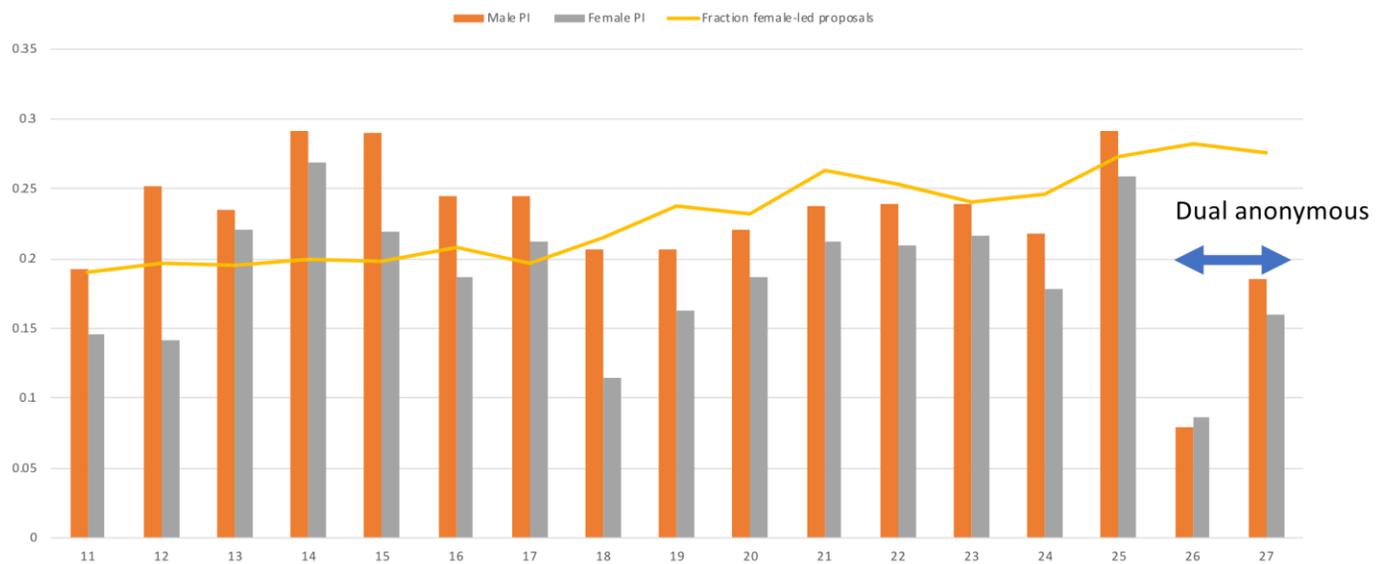
TODAY'S MUST READS

The Worst Thing That Could Happen to Facebook is Already Happening

Need to create a structure to eliminate bias.



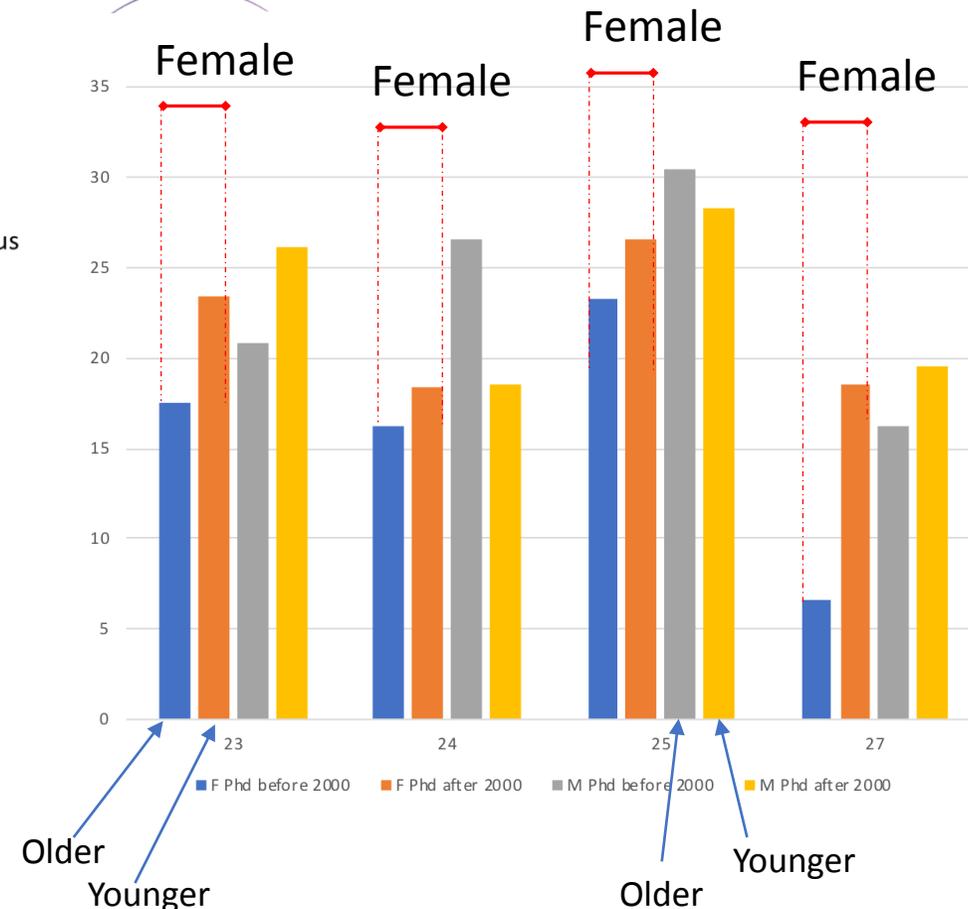
Where are we now? Overall gender statistics: Cy 11-27



From presentation
HST statistics
by
Neill Reid, STScI



Success by seniority



Excerpts from Preparing the Community – Lou Strolger, STScl

PROCESS

- Identify a process for an anonymous review; modifications to the current proposal review process
- Engage in a dialog with the community to solicit input; identify and mitigate concerns
- Provide guidelines to community for writing and for reviewing proposals
- Solicit Feedback from community

Craft proposal to be anonymous

- Exclude names and affiliations of proposing team, including in figures and references.
- Do not claim ownership of past work, e.g., “Our analysis shown in Strolger et al. 2012...” Rather, cite references in passive third person, e.g., “Analysis shown by Strolger et al. 2012...”.
- Do describe the work proposed, e.g., “We propose to do the following...” or “We will measure the effects of...”
- Don’t include detailed management plan.

Include separate Team Expertise / Background

Conflicts of Interest ----- Use of Levelers

Primary Concerns from Astrophysics Community

(Panel – Svea Hernandez, Crystal Mannfolk, Greg Snyder – StScl)

- The process wouldn't account for unique technical expertise of teams needed for successful HST work
 - While the team hasn't been a criteria in the evaluation process for HST, the community was extremely concerned the panel could no longer evaluate the team
- The proposer wouldn't be sure how to write for an anonymized process
 - An example would be how to refer to one's own unique datasets or tools that were required for proposal success
- The process wouldn't be implemented in a uniform fashion
 - How conflicts of interest were to be mitigated in the review was not clear
- Changes to the process wouldn't actually mitigate bias
- The community needed time to adapt to the changes

SMD Process Changes for Solicitation and Evaluation of High-Risk/High-Impact (HR/HI) Research - 1

WHY Implement?

- Research solicitations need both ‘small step’ and ‘big step’ inputs in order to be of most benefit to the community. There are generally three (3) types of High-Impact (HI) research: a) HI within a discipline; b) HI because it creates a new discipline; and c) HI because it is interdisciplinary in a new and innovative way.
- SMD conducted an analysis of recent Research Opportunities in Earth and Space Science (ROSES) data and found that 10% of proposals entering our existing solicitation processes are judged to be HR/HI, and that 35% of selected proposals are HR/HI.
- However, concern remains that this selected HI research likely trends more towards a specific discipline, and may be less likely to involve selection of research that is interdisciplinary and transformative in nature. Due to this concern, SMD is implementing a modification to our solicitation processes beginning with ROSES-20.

SMD Process Changes for Solicitation and Evaluation of High-Risk/High-Impact (HR/HI) Research - 2

PROCESS Outline

1. We will modify the set of solicitations to have proposers indicate that their proposal is HR/HI, and we will allow an additional short section for proposers to describe why their proposal is HR/HI.
2. Evaluation reviewers will indicate if they agree with the proposer's assessment of the intellectual risk and impact of their research.
3. On a quarterly basis, SMD Divisions will select from proposals judged to be HR/HI, and not previously selected, and recommend them to a special HR/HI selection process. The total number of proposals allowed into this process would be approximately sixteen (16).
4. SMD will then convene a 1-day 'Blue Ribbon' panel selection process on a not-more-than quarterly basis. The SMD Associate Administrator will chair the panel, with participants that are renowned leaders within their fields. The results of this panel process would be additional valuable research selections that further expand SMD's already existing investments in HR/HI research.

R&A Program Successes and Goals

- DRIVE initiative is now part of the Heliophysics R&A baseline
 - Space Weather is in addition to this baseline
 - Included more system science competitions - DRIVE Science Centers, HSO Connect
-
- Announce results expeditiously - within 180 days of step-2 proposal submission
 - Streamline HQ internal process - Implementation of new ROSES tools (panel planning, selections)
 - Reduce bias - Dual-anonymous experiment
 - Award more high risk/high reward proposals